Applicant: Fumiaki Morishita et al. Attorney's Docket No.: 08917-094001 / F 04-004-US

Serial No.: 10/770,297 Filed: February 2, 2004

Page : 3 of 9

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A process for producing a high purity trialkanolamine excelling in hue and having an APHA of not more than 40, comprising:

a step of producing a mixed alkanolamine by (1) a reaction of an alkylene oxide with liquid ammonia in the presence of a zeolite catalyst or by the (2) a reaction of an alkylene oxide with liquid ammonia in the presence of the a zeolite catalyst and a reaction of an alkylene oxide with aqueous ammonia;

a step of removal of a low-boiling substance for removing unreacted ammonia, water, a monoalkanolamine, and a dialkanolamine from the mixed alkanolamine to obtain a mixture deprived of low-boiling substances;

a step of removing a high-boiling substance, which have has a boiling point more higher than that of the trialkanolamine, by subjecting the product mixture deprived of the low-boiling substances to vacuum distillation to obtain a distillate; and

a step of redistilling the distillate obtained by the vacuum distillation.

- 2. (Original) A process according to claim l, wherein the unreacted ammonia is removed by means of a pressure distillation and/or nitrogen gas bubbling.
- 3. (Original) A process according to claim 1, wherein the water, the monoalkanolamine, and the dialkanolamine are removed continuously or batchwise by a vacuum distillation, respectively.
- 4. (Original) A process according to claim 1, wherein the redistillation is performed batchwise.

Applicant: Fumiaki Morishita et al. Attorney's Docket No.: 08917-094001 / F 04-004-US

Serial No.: 10/770,297 Filed: February 2, 2004

Page : 4 of 9

5. (Currently Amended) A process according to claim 1, wherein the redistillation is performed using a distillation column of-empty without a filler.

- 6. (Currently Amended) A process according to claim 5, wherein a distillate obtained by the redistillation is elassified grouped into an initial fraction, an intermediate fraction, and a post fraction, and the intermediate fraction is gathered collected as a trialkanolamine product.
- 7. (Original) A process according to claim 6, wherein the distillate is analyzed continuously or intermittently using an analyzer.
- 8. (Original) A process according to claim l, wherein the reaction requires at least part of the mixed alkanolamine to be recycled.
- 9. (Original) A process according to claim 1, wherein the mixed alkanolamine comprises a mono-, di-, and tri-alkanolamine.
- 10. (Currently Amended) A process according to claim 1, wherein the trialkanolamine is triethanolamine, the alkylene oxide <u>is</u> ethylene oxide, the alkanolamine <u>is</u> ethanol amine, the monoalkanolamine is monoethanolamine, and the dialkanolamine <u>is</u> diethanolamine.
- 11. (Currently Amended) A process for refining a trialkanolamine from a mixed alkanolamine obtained by a reaction of an alkylene oxide with ammonia, comprising:

a step of removing unreacted ammonia, water, a monoalkanolamine, and a dialkanolamine from the mixed alkanolamine by fraction distillation to form a raw material trialkanolamine;

a step of adding to the raw material trialkanolamine a low-boiling compound having a boiling point less than that of the trialkanolamine prior to distillation; and

a step of distilling the resultant trialkanolamine.

Applicant: Fumiaki Morishita et ai. Attorney's Docket No.: 08917-094001 / F 04-004-US

Serial No.: 10/770,297 Filed: February 2, 2004

Page : 5 of 9

12. (Original) A process according to claim 11, wherein the low-boiling compound is at least one selected from the group consisting of water; alcohols; ketones; esters; diols; and halogenated hydrocarbons.

- 13. (Currently Amended) A process according to claim 12, wherein the low-boiling compound is at least one selected from the group consisting of water; ethanol, methanol, propyl alcohol, isopropyl alcohol, butyl alcohol, and t-butyl alcohol; acetone, and methylethylketone; ethylene glycol monoacetate, and ethylene glycol monoethyl ether acetate; monoethylene glycol, and diethylene glycol; and carbon tetrachloride.
- 14. (Original) A process according to claim 13, wherein the low-boiling compound is at least one selected from the group consisting of water, the monoalkanolamine, and mixtures thereof.
- 15. (Original) A process according to claim 11, wherein the unreacted ammonia is removed by means of a pressure distillation and/or nitrogen gas bubbling.
- 16. (Original) A process according to claim 11, wherein the water, the monoalkanolamine, and the dialkanolamine are removed continuously or batchwise by a vacuum distillation, respectively.
- 17. (Currently Amended) A process according to claim 11, wherein the mixed alkanolamine is obtained by a process for producing a mixed alkanolamine by (1) a reaction of an alkylene oxide with liquid ammonia in the presence of a zeolite catalyst or by the (2) a reaction of an alkylene oxide with liquid ammonia in the presence of the a zeolite catalyst and a reaction of an alkylene oxide with aqueous ammonia.
- 18. (Original) A process according to claim 11, wherein the mixed alkanolamine comprises a mono-, di-, and tri-alkanolamine.

Applicant: Fumiaki Morishita et al. Attorney's Docket No.: 08917-094001 / F 04-004-US

Serial No.: 10/770,297 Filed: February 2, 2004

Page : 6 of 9

19. (Currently Amended) A process according to claim 1, wherein the trialkanolamine is triethanolamine, the alkylene oxide <u>is</u> ethylene oxide, the alkanolamine <u>is</u> ethanol amine, the monoalkanolamine is monoethanolamine, and the dialkanolamine <u>is</u> diethanolamine.